

# Exhibit B



### **Executive Summary**

IDS Group, Inc. (IDS) has completed the Tier 1 seismic screening portion of the seismic evaluation study for the Fairview Development Center Acute Infirm Wards D, E, and F buildings in Costa Mesa, California. The ASCE 41-17 Standard has been used for this project. These building are classified as Risk Category II. Level of Seismicity is "High". The performance objective selected as per the standard is the Basic Performance Objective for Existing Buildings (BPOE).

Review of existing documents has been done for the original structural and architectural drawings of the buildings. The site walk-through of the building was conducted on December 18, 2019. During the walk-through evidence of recent seismic upgrades of the buildings became evident. These upgrades included addition of concrete shear walls at the exterior of the buildings in the long (N-S) direction. No drawings pertaining to the seismic upgrade were available for review.

Based on the evidence found showing a recent seismic upgrade, as well as verification by the facilities manager regarding the same, we conclude that these buildings are ASCE 41-17 "Benchmark" buildings deemed to comply with the ASCE 41 BPOE.

## **Structural Assessment**

### **Building Description**

The Fairview Development Center in Costa Mesa, California is a large healthcare developmental complex that includes multiple buildings of various shapes and sizes. Acute Infirm Ward Buildings D, E, and F are three identical buildings located in this complex. These buildings are 1-story with no basement levels and have a building floor area of approximately 25,000 square feet each. Each building is divided into 3 segments separated by 1½” expansion/separation joints. These joints separate the wider central section of the ward from its south and north “wings”. They were constructed around 1956 according to the available structural drawings of the building. In addition to structural drawings, architectural drawings were also available for review. See Figure 1 below for a Google Earth image of the site. Based on Table 3-2 of the ASCE standard these building could qualify as a “Benchmark Building” of Type PC1a.



**Figure 1: Google Earth Image, Acute Infirm Wards at Fairview Development Center, Costa Mesa, CA**

### **Vertical Load Carrying System**

The vertical load carrying system for these buildings consists of 6” concrete prestressed lift slab supported by concrete precast columns. Columns are all 12” square and spaced 19’ apart in N-S direction and between 17’-6” and 24’-6” apart in E-W direction. Columns are supported on concrete square spread footings varying in size between 3’-8” and 4’-6”.

### **Lateral Load Carrying System**

The lateral load carrying system consists of reinforced concrete roof diaphragm and reinforced concrete shear walls. Shear walls are located at the exterior as well as the interior of the building. The original walls of the building are typically 9” thick. In addition, concrete shear walls at the exterior of

the south and north wings of the buildings were recently added. These walls were measured to be approximately 10' long and 13" thick. Figure 2 is a photograph of one of these added walls. The structural drawings of the upgrade that included addition of these walls were not available for review.



**Figure 2: Recently added concrete shear walls at the exterior of the buildings**

#### Seismic Assessment

Per ASCE 41-17 a Performance Objective shall consist of one or more pairings of a selected Seismic Hazard Level, with a target Structural Performance Level. The Basic Performance Objective for Existing Buildings (BPOE) has been selected for this project. The BPOE specifies a performance objective that varies with Risk Category, in accordance with Table 2-1 of the referenced document. The scope of the assessment required for Tier 1 screening is in accordance with Table 2-2 of the referenced document. This building falls into Risk Category II as noted in Tables 2-1 and 2-2. Figure 3 contains these two tables from ASCE 41-17. The site soil type has been assumed to be Site Class D.

**Table 2-1. Basic Performance Objective for Existing Buildings (BPOE)**

Risk Category	BSE-1E	BSE-2E
I and II	Life Safety Structural Performance	Collapse Prevention Structural Performance
	Life Safety Nonstructural Performance (3-C)	Hazards Reduced Nonstructural Performance <sup>a</sup> (5-D)
III	Damage Control Structural Performance	Limited Safety Structural Performance
	Position Retention Nonstructural Performance (2-B)	Hazards Reduced Nonstructural Performance <sup>a</sup> (4-D)
IV	Immediate Occupancy Structural Performance	Life Safety Structural Performance
	Position Retention Nonstructural Performance (1-B)	Hazards Reduced Nonstructural Performance <sup>a</sup> (3-D)

<sup>a</sup> Compliance with ASCE 7 provisions for new construction is deemed to comply.

**Table 2-2. Scope of Assessment Required for Tier 1 and Tier 2 with the Basic Performance Objective for Existing Buildings (BPOE)**

Risk Category	Tier 1 and 2 <sup>a</sup>	
	BSE-1E	BSE-2E
I and II	Not evaluated	Collapse Prevention Structural Performance
	Life Safety Nonstructural Performance (3-C)	Hazards Reduced Nonstructural Performance <sup>b</sup> (5-D)
III	Not evaluated	Limited Safety Structural Performance <sup>c</sup>
	Position Retention Nonstructural Performance (2-B)	Hazards Reduced Nonstructural Performance <sup>b</sup> (4-D)
IV	Immediate Occupancy Structural Performance	Life Safety Structural Performance <sup>d</sup>
	Position Retention Nonstructural Performance (1-B)	Hazards Reduced Nonstructural Performance <sup>b</sup> (3-D)

**Figure 3: Tables 2-1 and 2-2 from ASCE 41-17**

As is apparent from these tables, there is a significant difference between 2017 and 2013 editions of ASCE 41 with respect to setting the performance objective: For Tier 1 and Tier 2 evaluation of most buildings, while ASCE 41-13 used BSE-1E level seismic forces for checking the building for Life Safety, ASCE 41-17 uses BSE-2E level seismic forces for checking the building for Collapse Prevention. BSE-2N parameters must be used to determine the level of seismicity per ASCE 41-17. The above approach has been adopted by IDS and will be used for the seismic evaluation of these buildings.

ASCE 41 evaluation involves determining the Performance Level, Seismic Hazard Level, and Level of Seismicity for the project. The Performance Level of Collapse Prevention (CP) in response to the BSE-2E hazard level has been determined for this project per tables 2-1 and 2-2 of ASCE 41-17 which define the Basic Performance Objective for Existing Buildings (BPOE). Considering the latitude and longitude of this building (33.663°N, 117.928°W), the  $S_{DS}$  and  $S_{D1}$  parameters at the BSE-2N level are 0.901 g and 0.586 g respectively. Therefore, the Level of Seismicity is determined to be High per table 2-4 of ASCE 41 -17.

Seismic design parameters for the site were obtained from the USGS seismic design map. For BSE-2E earthquake level, the value of spectral response acceleration parameter at a 1-s period for site class D (default),  $S_{x1}$ , is 0.668 g. The period of the building is calculated as 0.117 s resulting in a spectral acceleration,  $S_a$ , value governed by the upper bound  $S_{xs}$  value of 1.079 g. This value is used in calculating the pseudo seismic force used in Tier 1 screening of the building

The summary data sheet of ASCE 41-17 for this building is shown in Figure 4.



## Appendix C: Summary Data Sheet

### BUILDING DATA

Building Name: Fairview Development Center - Acute Wards D, E, and F		Date: 12/30/2019
Building Address: 2501 Harbor Blvd Costa Mesa, CA 92626		
Latitude: 33.663	Longitude: -117.928	By: MK
Year Built: 1956	Year(s) Remodeled: Unknown	Original Design Code: 1952 UBC (assumed)
Area (sf): 25,000 sq ft each unit	Length (ft): 384'	Width (ft): 99'
No. of Stories: 1	Story Height: 10'-6"	Total Height: 10'-6"

**USE** ☐ Industrial ☐ Office ☐ Warehouse ☒ Hospital ☐ Residential ☐ Educational ☐ Other: \_\_\_\_\_

### CONSTRUCTION DATA

Gravity Load Structural System:	6" prestressed concrete lift slab supported by precast concrete columns	
Exterior Transverse Walls:	6" precast concrete panels / Glass	Openings? Yes
Exterior Longitudinal Walls:	6" precast concrete panels / Glass	Openings? Yes
Roof Materials/Framing:	Built-up roofing over prestressed concrete lift slab	
Intermediate Floors/Framing:	N/A	
Ground Floor:	5½" concrete slab on grade	
Columns:	12" square precast concrete columns	Foundation: Spread footings under columns
General Condition of Structure:	Good	
Levels Below Grade?	No	
Special Features and Comments:	Evidence of building alterations including additions at building ends were found, no drawings were available.	

### LATERAL-FORCE-RESISTING SYSTEM

	Longitudinal	Transverse
System:	Precast concrete shear walls with stiff diaphragms	Precast concrete shear walls with stiff diaphragms
Vertical Elements:	Precast concrete shear walls	Precast concrete shear walls
Diaphragms:	6" prestressed concrete lift slab	6" prestressed concrete lift slab
Connections:	#4 dowels @ 24" O.C.	#4 dowels @ 24" O.C.

### EVALUATION DATA

BSE-2N Spectral Response Accelerations:	$S_{Ds} = 0.901$	$S_{D1} = 0.586$
Soil Factors:	Class = D (Assumed)	$F_a = 1.0$ $F_v = 1.816$
BSE-2E Spectral Response Accelerations:	$S_{x5} = 1.079$ g	$S_{x1} = 0.668$ g
Level of Seismicity:	High	Performance Level: Collapse Prevention for BSE-2E
Building Period:	$T = 0.117$	
Spectral Acceleration:	$S_a = 1.079$	
Modification Factor:	$C_m C_1 C_2 = 1.4$	Building Weight: $W =$ N/A
Pseudo Lateral Force:	$V = 1.51W$	

**BUILDING CLASSIFICATION:** Precast concrete shear walls with stiff diaphragms - PC1a

### REQUIRED TIER 1 CHECKLISTS

	Yes	No
Basic Configuration Checklist	<input type="checkbox"/>	<input type="checkbox"/>
Building Type <u>PC</u> Structural Checklist	<input type="checkbox"/>	<input type="checkbox"/>
Nonstructural Component Checklist	<input type="checkbox"/>	<input type="checkbox"/>

**FURTHER EVALUATION REQUIREMENT:** \_\_\_\_\_

Figure 4: ASCE 41-17 summary sheet

### **Conclusion and Recommendations**

The apparently recent seismic upgrade of these buildings included the addition of new concrete shear walls and therefore these buildings are designated “Benchmark” buildings per ASCE 41-17. While no drawings pertaining to the seismic upgrade were available, IDS has based this conclusion upon field observed evidence of the recent upgrade, as well as verification (in person, verbal) by the facilities manager. Therefore, these buildings are deemed to comply with the basic safety objective (BPOE, structural only) of the ASCE 41-17 standard and no structural retrofit is recommended at this point in time.